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*See new manual -  
April 1969*

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Approved For Release 2003/05/15 : CIA-RDP78B04747A002400060002-8

MANUAL

OPERATION AND MAINTENANCE

9 1/2 INS. PROTOTYPE  PROCESSOR

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CONTRACT

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## FOREWORD

The information contained in this manual is based on the experience  
gained during the evaluation test program

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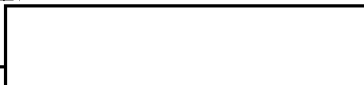
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9 1/2 ins.



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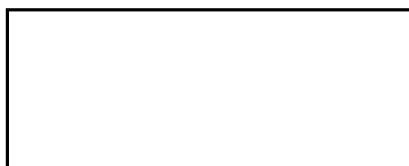
PROTOTYPE SPECIFICATIONS

The processor is designed to meet the following performance specifications:

1. Film Types

Negative Film

Positive Duplicating



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2. Film Widths

70 mm and 9 1/2 ins.

Other film widths may be processed between 70 mm and 9 1/2 ins. but spool shafts and splice plates are not provided.

3. Film Capacity

Load magazine and take-up spools to accommodate rolls of 70 mm and 9 1/2 ins. film up to 1000 feet in length.

4. Temperature Control

Fixed processing temperature 110°F, variable 85°F to 120°F.

5. Maximum Processing

1000 feet at a maximum rate of 15 Fpm for film



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6. Operation

Daylight or darkroom

7. Density

Density variation to be controlled to within 0.05 units at a nominal density of 1.0.

8. Transport Speed

Continuously variable from zero to 17.25 Fpm.

9. Transport Control

The transport speed is controlled by the vacuum roller, which is driven by a 1/50  gear reduction motor. A speed control unit is provided.

10. Overall Dimensions

Length 10' - 6" without load magazine, with load magazine 11' - 0", 41 ins. wide, maximum height 52 ins.

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SECTION I  
INTRODUCTION & DESCRIPTION

1.1 Introduction

This brochure is issued as basic operation and maintenance instructions for the 9 1/2 ins. prototype [redacted] processor, designed and built to Technical Proposal [redacted] under the authorization of Phase II of contract [redacted]

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1.2 The equipment is designed to fully process 70 mm to 9 1/2 ins. aerial reconnaissance negative film [redacted] and positive duplicating film [redacted] as specified in the table 1-1 of Prototype Specifications.

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1.3 Leading Particulars

Significant particulars of the processor are listed in table 1-1. A standard 1000 ft. magazine is provided at the load end of the processor. The film path is a straight path through the splice box, wet section modules, and dryer, onto the main transport vacuum drive roller at the opposite end of the processor. The film is taken up from the vacuum drive roller onto a standard spool synchronously driven through a friction clutch. The main power supply is fed into the load end of the processor. All circuit controls are located on two panels at the take-up end of the processor.

## SECTION 2

### PREPARATION FOR USE

#### 2.1 Unpacking

The processor is shipped, complete for operation except for protective wrapping and crating. After uncrating, remove protective wrappings and hold-downs from vacuum rollers, light tight air exhausts etc. The magazine and take-up spools and shafts are wrapped separately and stowed in the processor. Casters are provided for ease of location and movement.

#### 2.2 Installation

The processor may be wheeled to the area of operation, and checked to ensure that it is reasonably level. After checking that all switches are off, plug the cable provided into the correct power supply. The drain connection may be connected by a hose to the nearest drain. Carefully remove all lint and dust accumulated during delivery, from the tanks, drain trough, dryer, electrical panels, etc. by means of an air hose. Connect to running water and wash out all tanks, etc.

#### 2.3 Description of Essential Controls

1. A key locked compartment is provided on each side of the load end of the machine. See fig. 2-1. The main power supply cable enters the left side (facing the magazine) where the main remote controlled power contactors are located. In the compartment on the other side of the processor (see fig. 2-2) are located the switch circuit breakers for the tank control circuits, air blower, vacuum pump, and dryer.
2. Two control panels are provided at the take-up end of the processor, one on each side of the vacuum drive roller. See fig. 2-3. The left hand side panel (facing the end of the machine) contains the following controls.

- 1) Solution temperature indicator °F.
- 2) Solution temperature readout selector
- 3) Film drive ON - OFF switch
- 4) Film speed controller

The opposite side panel contains the following controls.

- 5) "Power ON" switch
- 6) "Process ON" switch
- 7) Five identical sets of controls, one for each of the wet sections, each consisting of:
  - a) Tank warm-up ON - OFF switch
  - b) "Ready" light
  - c) "Liquid level low" warning light
  - d) Solution heater selector switch "Normal or Fast"
  - e) Dryer heater selector switch "2 heaters" or "4 heaters".

On the rear side of this switch panel housing is mounted a voltmeter, voltage controller, and "ON - OFF" switch for the dryer infrared generator. See fig. 2-3.

3. Temperature Control Adjustments - The temperature set-point of the solution in each tank can be pre-set by means of the screw driver adjustment provided at each tank thermostat. Thermostats are also provided for the heat exchanger glycerin/water solution. See fig. 2-4 for location of thermostats and typical heat exchanger system.

4. **Operational Checks.** The following operational checks should be made prior to processing film, to ensure satisfactory functioning of all systems.

- 1) Fill all tanks with clean water using the filler bottles provided until water runs out of each tank overflow. See fig. 2-5.

Note: Make certain that all filter drain cocks are closed.

- 2) Fill the heat exchangers with a mixture of 50 percent pure glycerine and 50 percent water.
- 3) Operate the "POWER" switch to "ON", check that the green light in the switch comes on.
- 4) Operate tank 1, tank 2, tank 3, tank 4, and tank 5 switches. The "ON" switch, "warm-up" lights (yellow) should illuminate.
- 5) If the liquid level in any tank is low, the red low level warning light will illuminate for the tank or tanks in this condition. The liquid levels should be topped up until the warning light extinguishes.

Note: These red lights will also illuminate if the glycerine water mixture in the heater exchangers is below operating level.

- 6) When the tank contents have reached the required pre-set temperature, the green "READY" lights should illuminate. After these indicators come "ON" the "PROCESS" switch may be operated to "ON", and the green light in the switch should illuminate.

- 7) To raise the temperature of the solutions in the tanks, the "Fast - warm-up" switches should be operated to "Fast". After the "READY" lights illuminate, these switches should be operated to "Normal".

Note: When these switches are operated to "Fast", two 1000 watt heater elements in each tank are energized, and the recirculation pumps switch "ON". After the solutions have reached operating temperature, and the "READY" lights illuminate, these switches may be operated to the "Normal" position. In this position only one 1000 watt heater remains in circuit for each tank to maintain the temperature within the specified tolerance.

- 8) When the "PROCESS" switch is operated to "ON", the air blower, vacuum pump, liquid bearing pumps, are switched into circuit. The transport can be operated to "ON" whenever it is required.
- 9) The dryer consists of both air knives and an infrared generator. When the power switch is "ON", the infrared output may be checked by switching on the generator, and check that the voltmeter gives a full scale reading as the rheostat is rotated.
- 10) Operate the transport switch to "ON" and check that the vacuum transport roller operates smoothly from zero to maximum Rpm.

Note: The infrared generator will energize and the safety shield only open when the transport switch is "ON".

- 11) Check that the module and recirculation pumps all operate satisfactorily.
- 12) Load the magazine with thin base or obsolete film of the type to be processed. Mount the magazine in place, and thread the processor. See fig. 2-6 for threading path.

13) Threading Procedure -

1. Remove the upper exhaust covers and the plastic tank covers below these.
2. With the module pumps running, insert the 70 mm width mylar threader provided into the splice box and hand thread it through all the modules, tanks, and the dryer. Mount the magazine loaded with leader or film as required. Prepare the end of the leader or film and splice as shown in fig. 2-8.

Note: The magazine should be loaded with sufficient leader at both the head end for threading and the tail end to prevent damage to the end of the film.

- 14) Switch on the processor as directed and transport film over a range of speeds. Check for satisfactory mechanical performance and examine the film for evidence of mechanical scratching marks, etc.
- 15) Make-up water for the wash module is provided by means of a quick disconnect fitting, located as shown in fig. 2-7. A length of connecting hose is provided with the processor. A regulating valve is provided in the supply line to the wash section to provide adjustment in the flow of fresh water.

2.4 Filling of Tanks

It is important to fill the tanks slowly and carefully at the correct locations in the tanks with the filler funnel provided. The tanks should be filled initially with the following quantities of solutions only:

- |                            |               |
|----------------------------|---------------|
| a) #1 Developer Tank       | 4 1/2 gallons |
| b) #2 Short Stop           | 2 1/4 gallons |
| c) #3 Fix Tank             | 4 gallons     |
| d) #4 Hypo Eliminator Tank | 2 1/4 gallons |

After the tanks are filled the pumps should be switched on. The liquid levels will fall, due to purging of trapped air and filling

of pipe lines, etc. The tanks must then be topped up by use of the replenishment bottles. See fig. 2-9.

## 2.5 Replenishment

Replenishment of the chemical solutions is achieved by maintaining the liquid level of the tanks during processing. This is achieved by the use of special replenishment bottles provided. These bottles should be filled, inverted and inserted into the neck of the replenishment blocks. See fig. 2-9. The replenishment bottles are identified by a colored band as follows:

- a) Developer - Red
- b) Stop - Yellow
- c) Fix - Green
- d) Hypo eliminator - Blue

## 2.6 Processing Speed Calibrations

The film speed controller (fig. 2-3) is calibrated 0-100. The following table gives the co-relation between this calibration and Fpm of the film during transport.

<u>Calibration</u>	<u>Film Speed (Fpm)</u>
20	2
30	3.5
40	6
50	7
60	9
70	11.5
80	14
90	16.5
100	17.25

When preparing for processing, the speed control should be set to the required film speed (Fpm) on the dial, then checked for accuracy by means of a tachometer operated from the main drive capstan.

## 2.7 Processor Exhaust

The exhausting of the air from the processor modules may be accomplished by one of two methods. The module covers incorporate both a light sealed exhaust slot and an exhaust pipe connection spigot. If the exhaust duct provided is installed, the sealing plates fitted over the exhaust slots should be retained. If the exhaust duct is not used, the sealing plates should be removed and the spigots sealed off. See fig. 2-10.

SECTION 3  
SENSITOMETRIC DATA

3.1 Film Processing Parameters

1. The following film types in widths of 70 mm and 9 1/2 inch may be processed.

- |    |   |                                    |
|----|---|------------------------------------|
| a) | <div style="border: 1px solid black; width: 120px; height: 130px;"></div> | Panatomic 'X'                      |
| b) |   | High Definition Aerial Film        |
| c) |   | Aerographic Duplicating Film       |
| d) |   | Five Grain Aerial Duplicating Film |

2. The sensitometric performance of the processor is based on the closest possible match to standard samples of each film exposed and tray processed per manufacturers standards.




d)  relative printing speed of 1/5th the speed

Development: 8 minutes at 68°F in D-76.

3. Reference film sample exposure data.

The following exposing data was used for both the reference and Sepratron film samples.

1) Instrumentation used:

sensitometer

Step tablet

Filament,  Meter Candles - 116600 - Amp. Setting 7.0.

a)  N. D. filter, 1.30 - color correction filter,  exposure time - 1/100 sec.

b)  N. D. filter, 0.65 - color correction filter,  exposure time - 1/100 sec.

c)  N. D. filter, 1.30 - color correction filter, none - exposure time 1/15 sec.

d)  N. D. filter, 0.65 - color correction filter, none - exposure time 1/15 sec.

4. Sensitometric film samples of each type, in each of the two widths, may be prepared in accordance with fig. 3-5. These samples may be used in evaluating the following parameters:

- 1) Gamma
- 2) Phtographic Speed
- 3) D. min. - D. max.
- 4) Development uniformity edge to edge
- 5) Resolution
- 6) Complete Fixation
- 7) Archival Quality per ASA PH 1.28-1957

### 3.2 Chemical Formulations

1. The developers used in this processor are a modification of the Navy Rapid Developer, NRD-29, [redacted] type A, and [redacted] proprietary chemistry. The prototype [redacted] has been designed on the basis of the results obtained in the breadboard in Phase I with this chemistry.

2. The formula for NRD-29 (Navy Rapid Developer for Aerial Film) as used in the testing is as follows:

Water 100°F	750.0 Ml
Metol	5.0 grams
Sodium Sulfite, Des	50.0 grams
Hydroquinone	20.0 grams
Sodium Hydroxide	10.5 grams
Potassium Bromide	8.0 grams
Benzotriazole	0.2 grams
Water to Make-up	1.0 liter

[redacted] H10 Anti-foam 0.20 ml/l must be added to the developer and stop bath.

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HE DESIRED ONLY ONE  
ACQUISITION FILM AND BOTH  
DUPLICATING TYPES.

- STAT 3. [ ] Type A developer.
4. Stop bath 5% solution acetic acid.
- STAT 5. [ ] proprietary chemistry
- STAT [ ] Fixer
- [ ] Hypo Eliminator

### 3.3 Film Processing

1. The processor is to be operated for each of the specified film types at the temperature and processing rate given for the particular film, in the table of experimental parameters and results below.

#### EXPERIMENTAL PROCESSING PARAMETERS & RESULTS

Transport Speed (Fpm)	Developer	Process Temp (All Tanks)	Drier * Volts	Drier Position	Sensitometric Results
6	[ ] Type "A"	90°F	225	4th	Fig 3-1
7	NRD 29	100°F	160	4th	Fig. 3-2
4.75	NRD 29	83°F	230	4th	Fig 3-3
15	NRD 29	90°F	120	4th	Fig 3-4

2. Figures 3-1 through 3-4 show a sensitometric comparison of film samples processed in NRD-29 and [ ] type A developers and their relationship to reference samples tray processed in accordance with film manufacturers recommendations.

#### \*Note

The voltage figures are those required for continuous running. Starting voltages for the first 30 feet may be higher.

3. Drier Parameters

To achieve optimum film drying, based on   
 results, the processor environment should  
be maintained at  $70^{\circ}\text{F} \pm 2^{\circ}\text{F}$  and R. H. of  $50\% \pm 5\%$ .

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## SECTION 4

### MAINTENANCE INSTRUCTIONS

#### 4.1 Processor Arrangement

The main components, access panels, wiring assemblies, etc. are shown in fig. 4-1 through 4-10.

#### 4.2 Cleaning

1. All external surfaces are polished stainless steel or plastic covered. General cleaning discipline is important to the successful operation of the processor. Before processing film, the processor should be cleaned with a vacuum cleaner using a soft brush attachment. Smudges and fingerprints may be removed from the surfaces with a soft sponge moistened with a mild detergent.
2. Clean all rollers in the load magazine, splice box, at the dryer output and the vacuum roller with clean warm water in which a very small amount of detergent has been added. Dry off all rollers with clean compressed air, to avoid lint from cloths.
3. Replace air filter as required.

#### 4.3 Lubrication

The processor has been designed to eliminate the need for the use of lubricating grease or oils. The speed reducer portion of the film transport vacuum roller drive motor, however should be lubricated with light oil every 1000 hours of operation.

#### 4.4 Adjustments

The need for sensitive adjustments has also been eliminated in this processor, but means are provided for regulating the following:

1. Liquid flow into modules. An adjustment throttle is provided in the pressure feed line from each pump to the corresponding module. This adjustment has been preset

to give the optimum performance for the specified types of film. If a different type of film requiring adjustment of liquid flow to provide damage-free transport is to be processed, however, such adjustments may be made. See fig. 4-2.

2. Solution temperature control. The temperature control system is comprised of two sub-systems.

Solution tempering is achieved by heat transfer from an exchanger in the bottom of each solution tank. The heat exchanger consists of a tube filler with mixture of 50% pure glycerin and water. The heaters in the heat exchanger itself are controlled by a maximum temperature factory set thermostat.

Solution temperature control is achieved by means of two additional thermostats. One thermostat is preset at 110°F. The other is variable and may be adjusted to suit any particular film requirement. Either 110° F or variable control can be selected by means of the switch provided. See fig. 2-4.

#### 4.5 Disassembly and assembly

This processor is of compact unit construction consisting of one component only. All assemblies and items of equipment may be removed in a straight forward logical manner, as detailed below and shown in fig. 4-1, etc.

1. Magazine. The magazine is mounted in place as shown in fig. 4-11, and is automatically locked into position and the magazine light trap opened.

Caution: The splice box cover must be closed when mounting magazine, to prevent fogging of the film as the light trap opens.

2. Splice Box. Two interchangeable splice plates are provided for 70mm and 9 1/2 ins. wide film. The splice plates are installed by simply positioning on two locating studs.

The roller over which the film travels out of the splice box lifts out of its end housings.

3. **Cover and Access Panels.** All cover access panels are removable without the use of special tools as follows:
  - a) Splice box cover. This is not removable and is hinged along the rear edge.
  - b) Exhaust hoods. These contain light traps and exhaust the air used by each [ ] module. They lift off the top of the machine.
  - c) With the exhaust hoods removed, the tank covers and inserts may be lifted out for access to the tanks.
  - d) Top panels. (left and right). These are finishing panels and lift off directly, giving access to the air feed duct into each side of the [ ] modules. Those in the left hand side panel are provided with inserts for the solution replenishing bottles.
  - e) Side panels. Two panels are provided for each side of the processor and may be removed by lifting and pulling out the bottom edge. The left side panels give access to the main drain trough, filters, pump connections and temperature control thermostats. The right side panels give access to the main electrical connection assemblies.
  - f) Infrared generator. Access to the infrared generator assembly is obtained by lifting off the cover provided on top of the processor in front of the vacuum drive roller. See fig. 4-6.
  - g) Dryer. The dryer assembly may be removed by withdrawing it out of its tracks. A handle is provided for this purpose. When the dryer assembly is removed, access is provided to the booster heaters, which may be unscrewed from their sockets for replacement. See fig. 4-12.

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- b) A removable door below the dryer gives access to the electrical panel containing the terminal strip connectors for the two main switch panels and the dryer relays. The vacuum pump for the vacuum roller, and the drive motor controller and the temperature controller are also mounted in this compartment, see fig. 4-7.

#### 4. Component Removal.

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- a) The  impingement modules may be removed for cleaning or examination by removing the appropriate square access panel in each side main air duct, and releasing the four bolts holding the connector in the module ends. The pipe connection from the pump into the module on the left side of the machine should next be removed. The module assembly itself may now be taken out after removing the four bolts and securing it on each side, see fig. 4-8.

The agitation plenum in the tank of the development and wash section only may be removed by disconnecting the center of the three connections from the pump, below the tank, removing the two screws securing the plenum in the tank, and lifting it out. See fig. 4-13.

- b) The vacuum roller drive motor is located behind the panel on which the speed control is mounted. The panel may be removed after extracting the four holding screws, see fig. 4-9.
- c) The take-up spool drive motor is mounted in the compartment adjacent to the drive motor compartment. Access to the compartment is gained by removing the two screws securing the cover. The friction clutch on the spool drive shaft is also accessible for adjustment, see fig. 4-9.
- d) Access to the temperature control boxes is by removal of the two left side access panels. On each control box a switch is provided to select 110°F or the variable temperature from 85°F to 110°F. See fig. 4-4.

- e) Main Air Blower. The air blower is located in the compartment below the magazine and splice box. Access for inspection is obtained by removing the entire top as shown in fig. 4-3.
- f) Infrared Generator. The infrared generator, see fig. 4-6 is adjustable in height to decrease or increase the intensity by raising or lowering it as drying requirements dictate. It may be removed or adjusted in height, from the film surface, by removing the two screws securing it to each side mounting bracket.  
Note: The generator will overheat if coolant water is not circulated through the jacket. The water circulation should be checked prior to processing.

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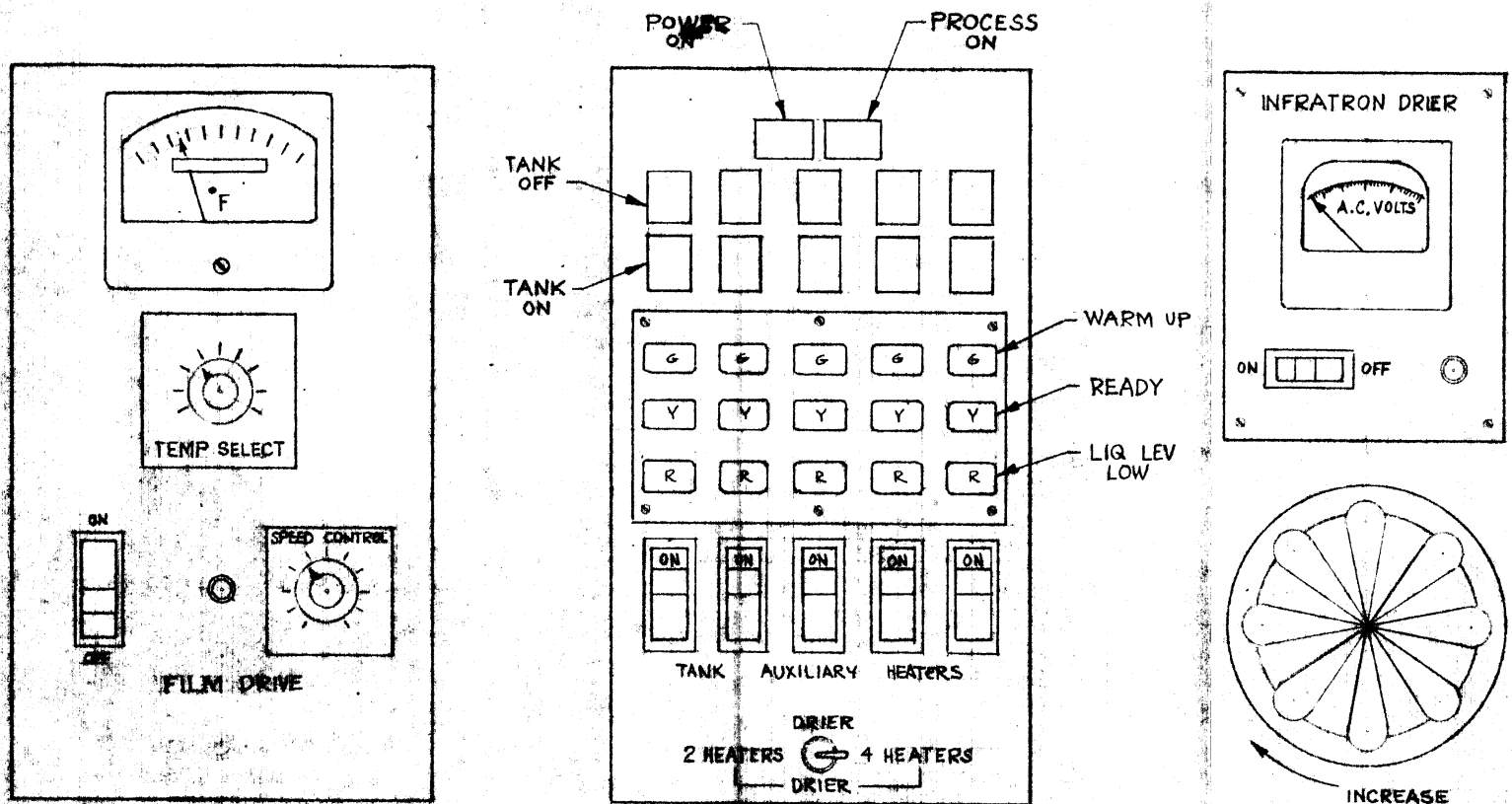
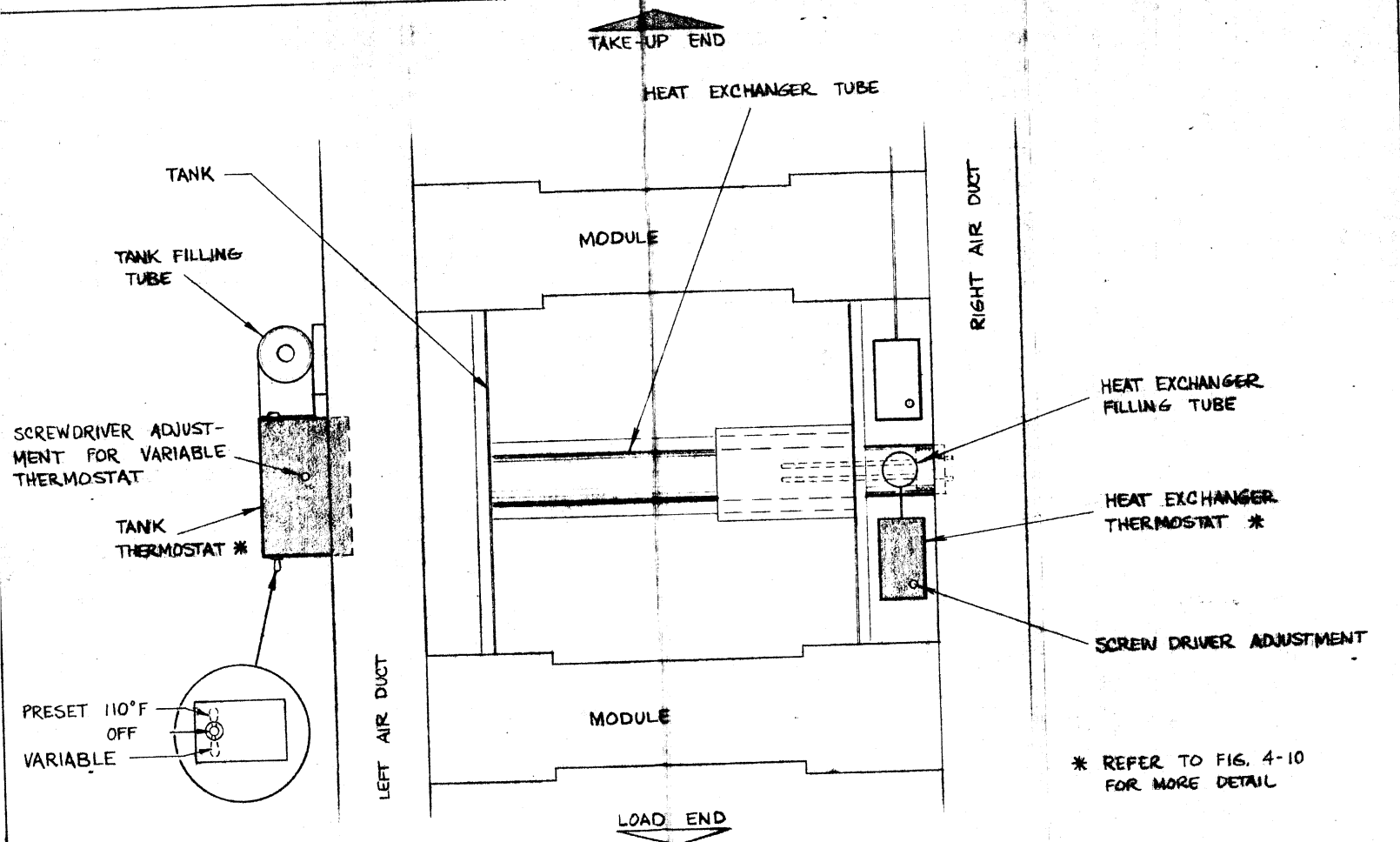


FIG. 2-3

CONTROL PANELS



\* REFER TO FIG. 4-10  
FOR MORE DETAIL

PLAN VIEW OF TYPICAL TEMPERATURE CONTROL ADJUSTMENTS  
FIG 2-4

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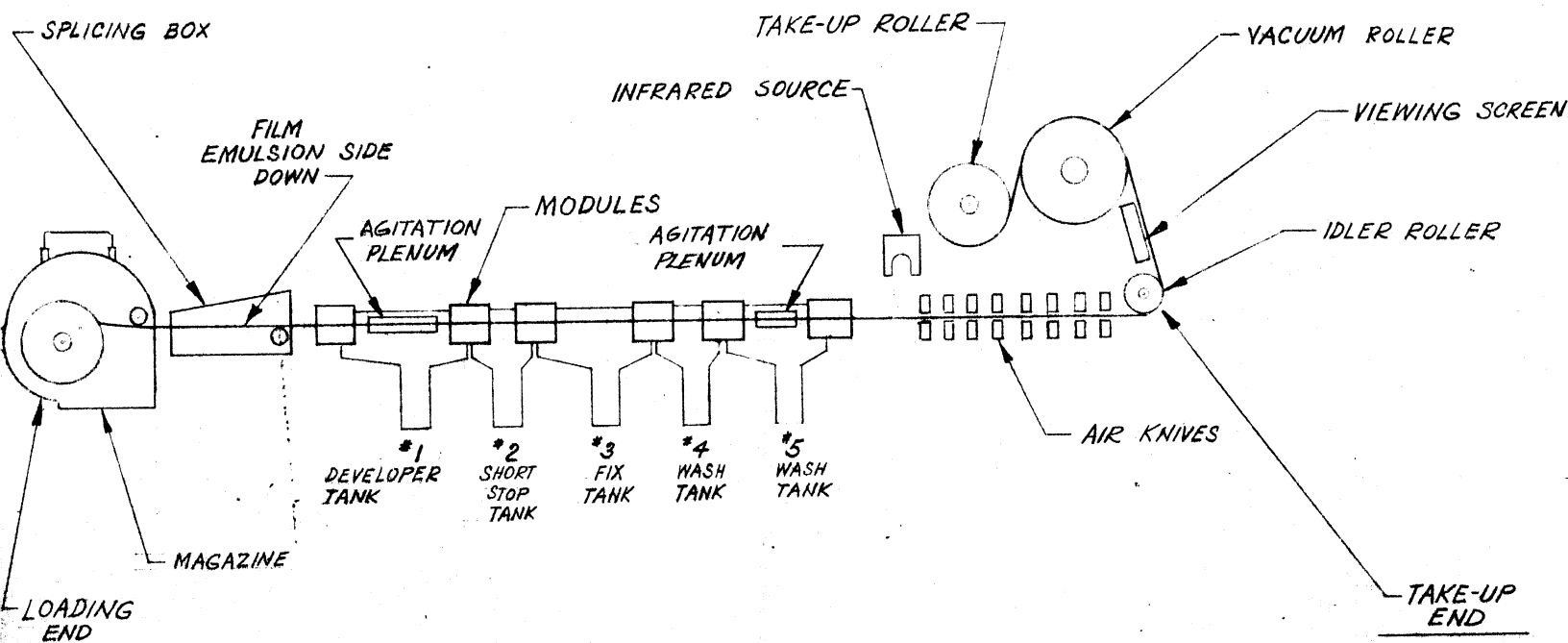
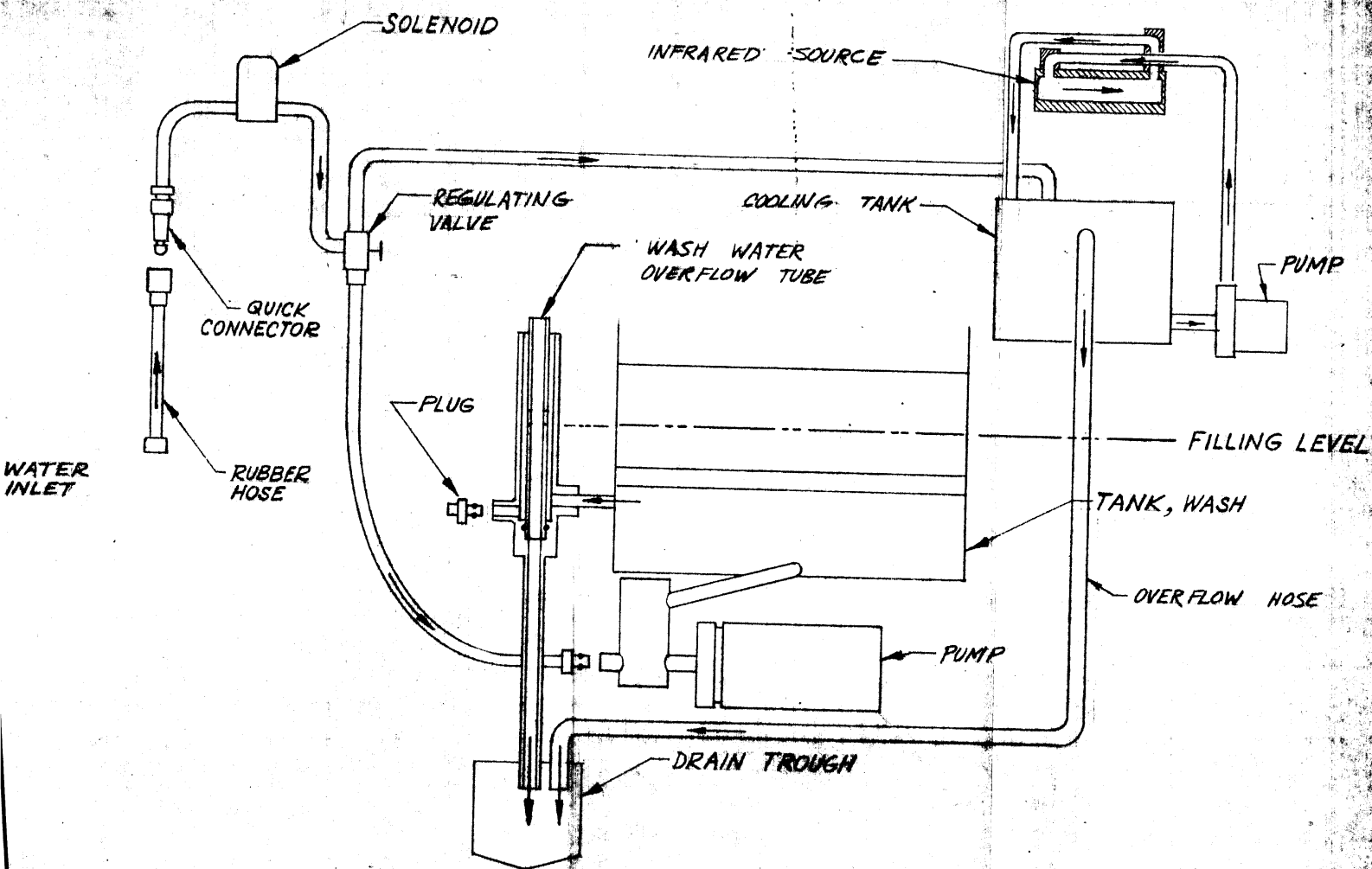


FIG. 2-6

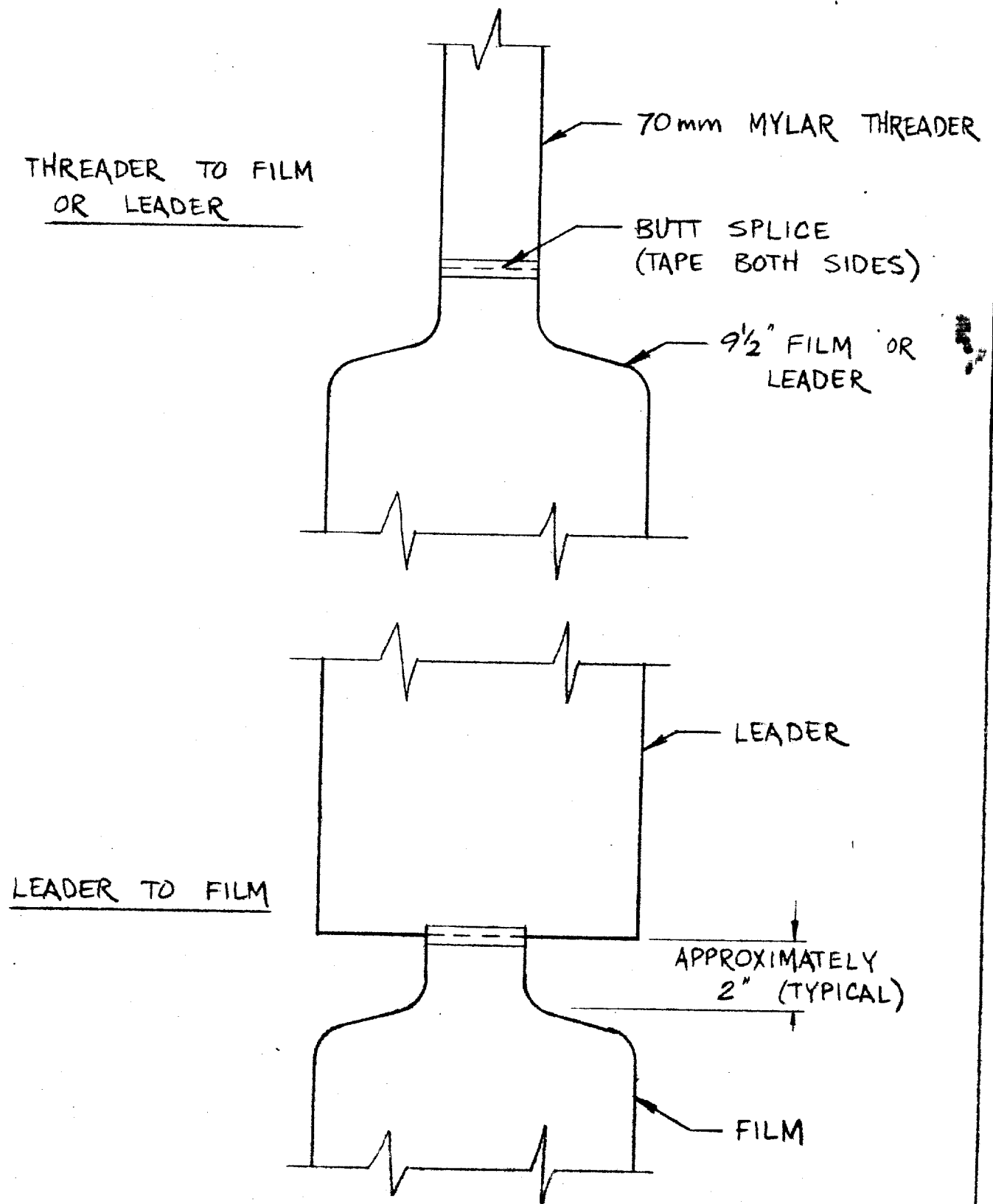
SCHEMATIC  
OF  
FILM THREADING PATH.



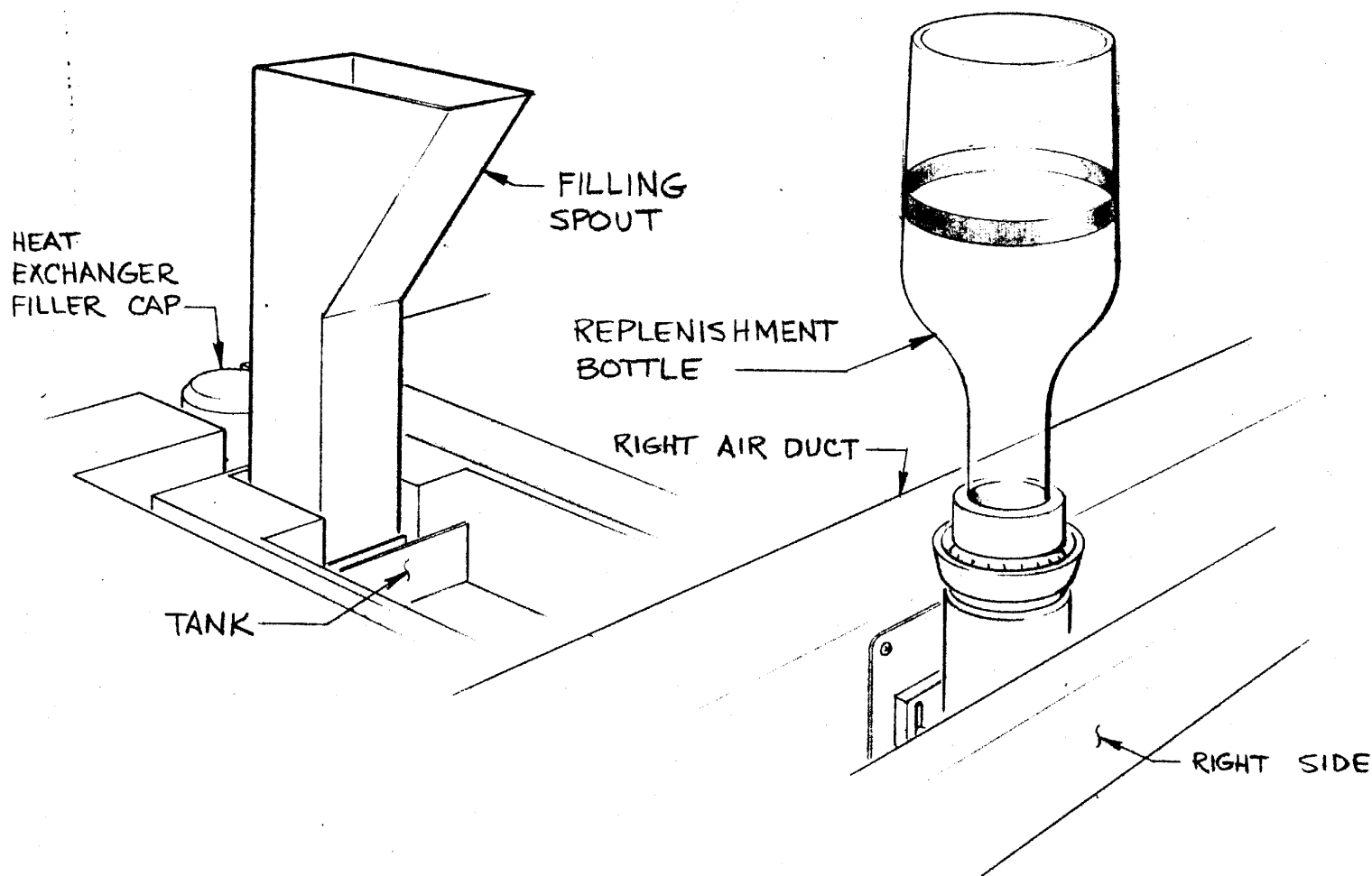
WASH WATER SYSTEM

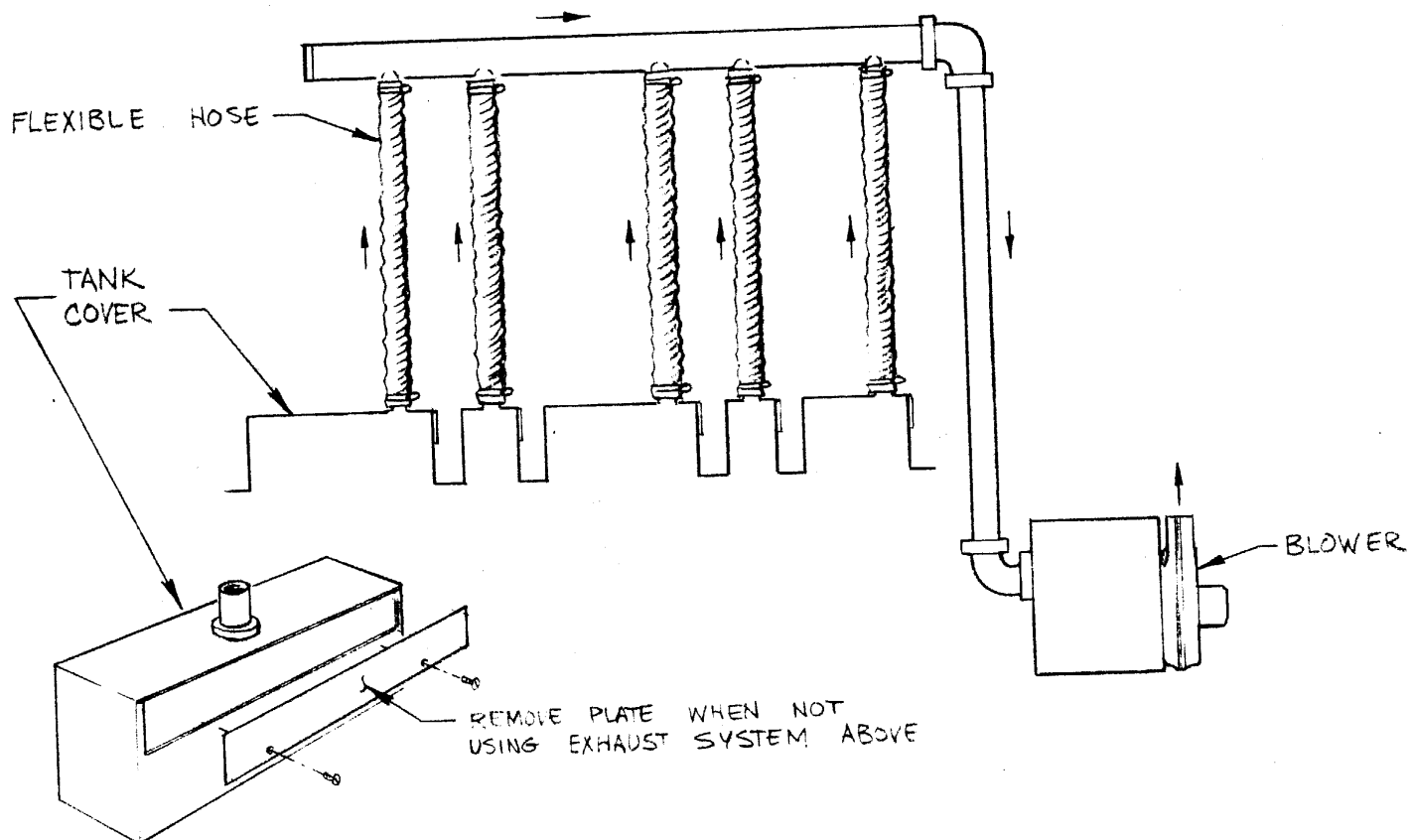
FIG. 2-7





## SPLICING TECHNIQUES





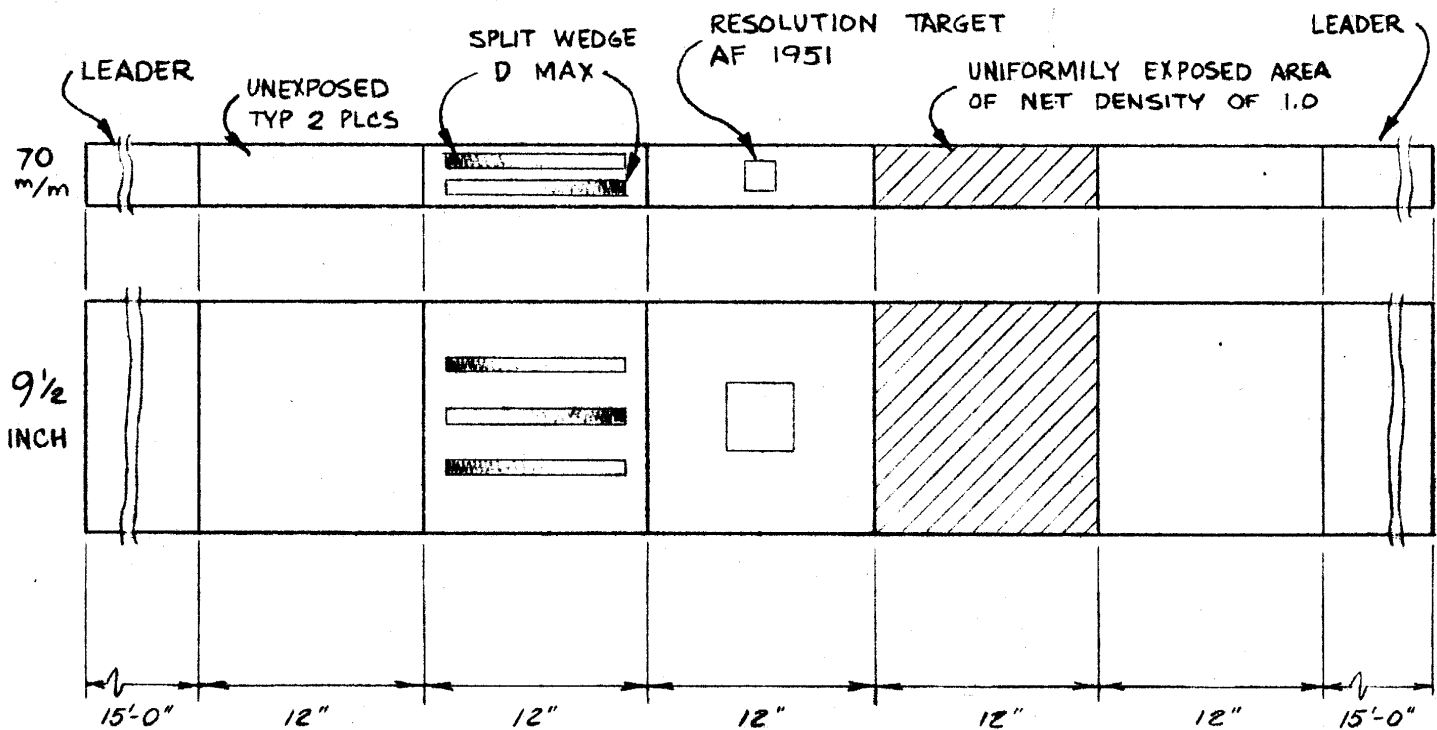
PROCESSOR EXHAUST

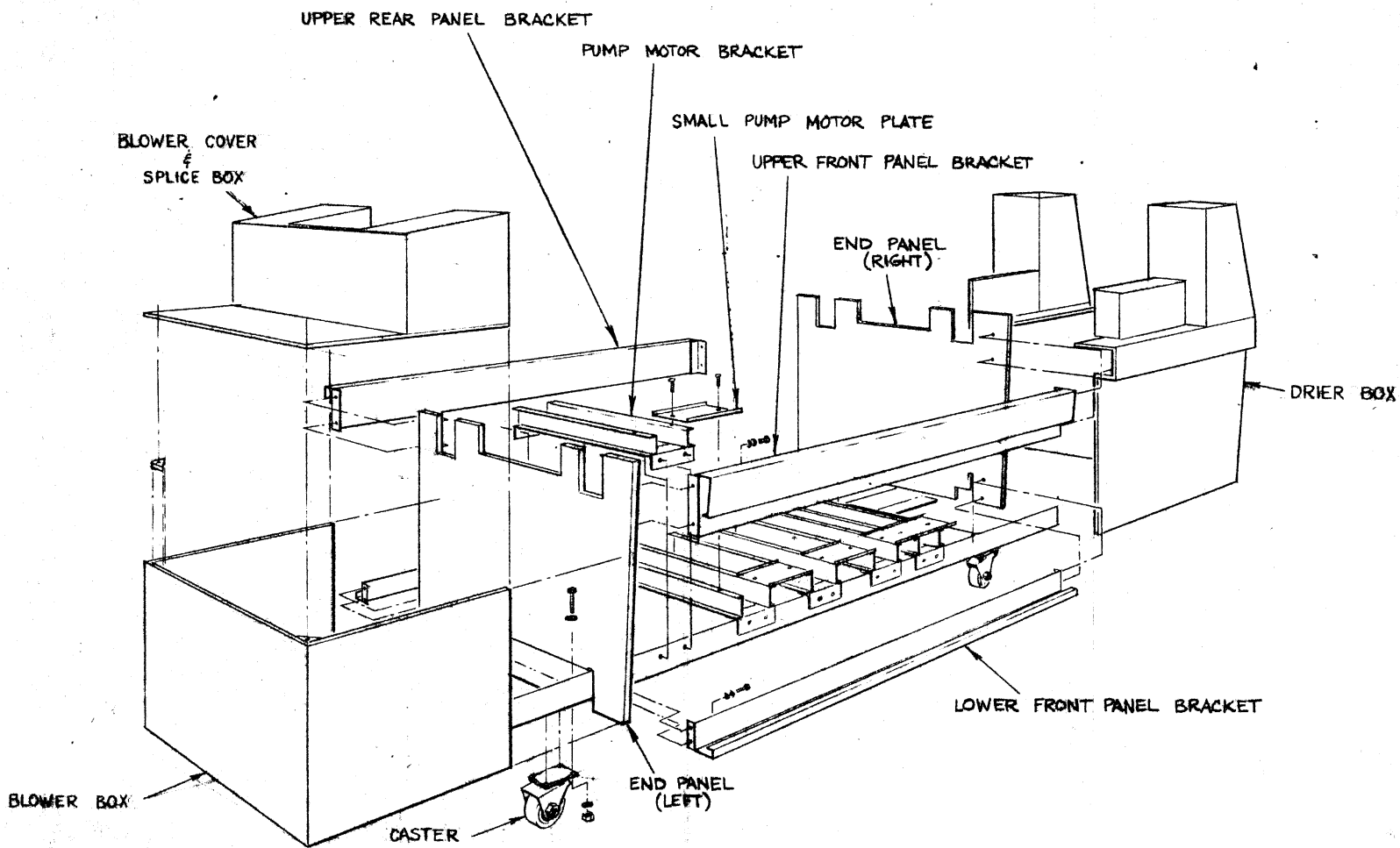
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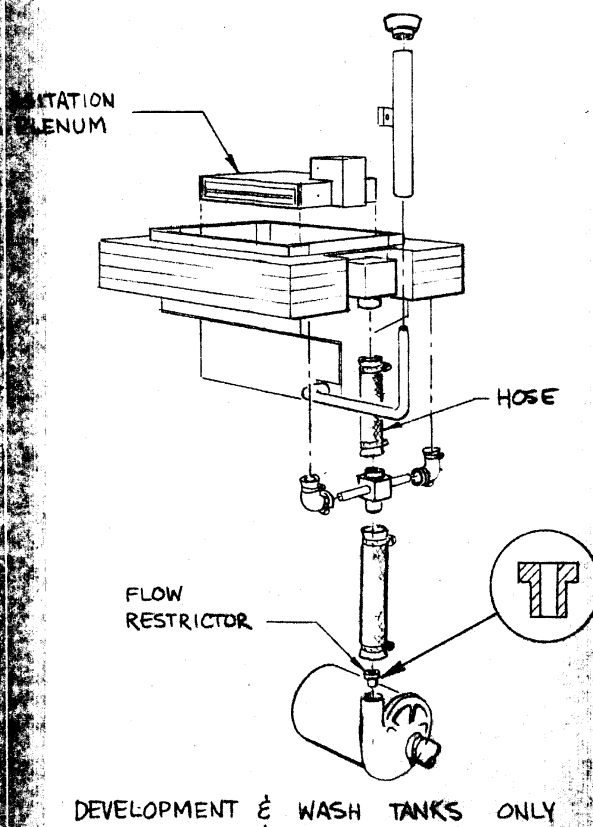
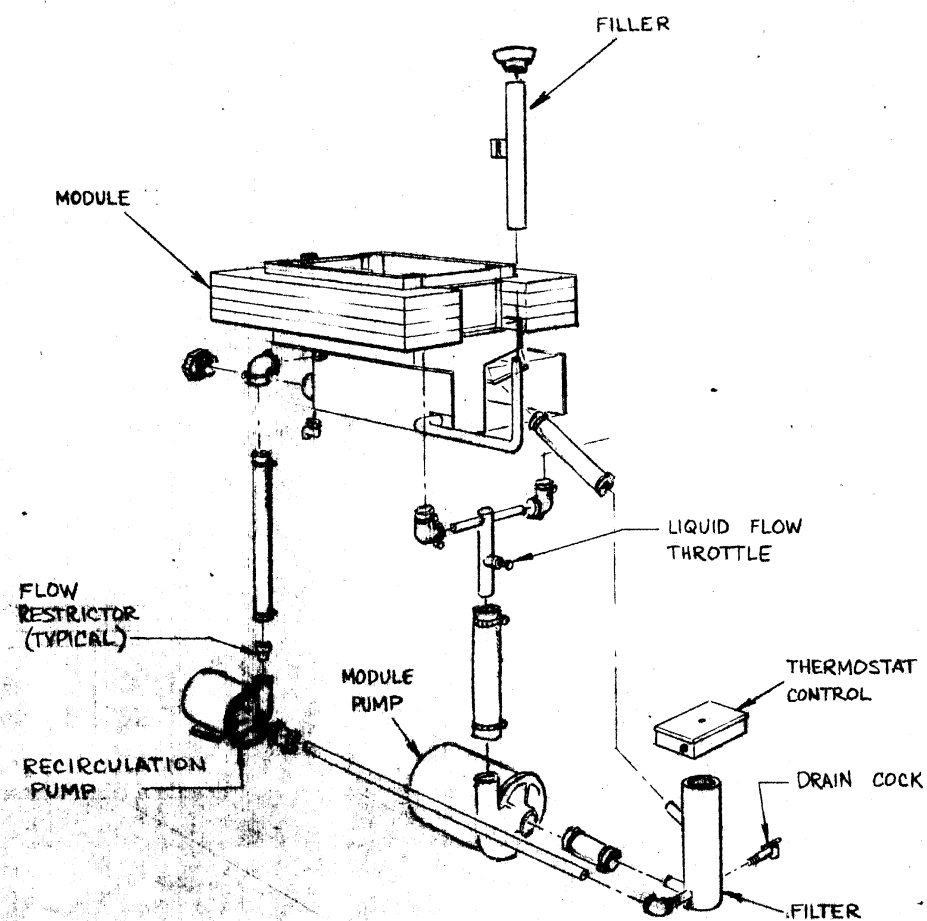
## TEST SAMPLES



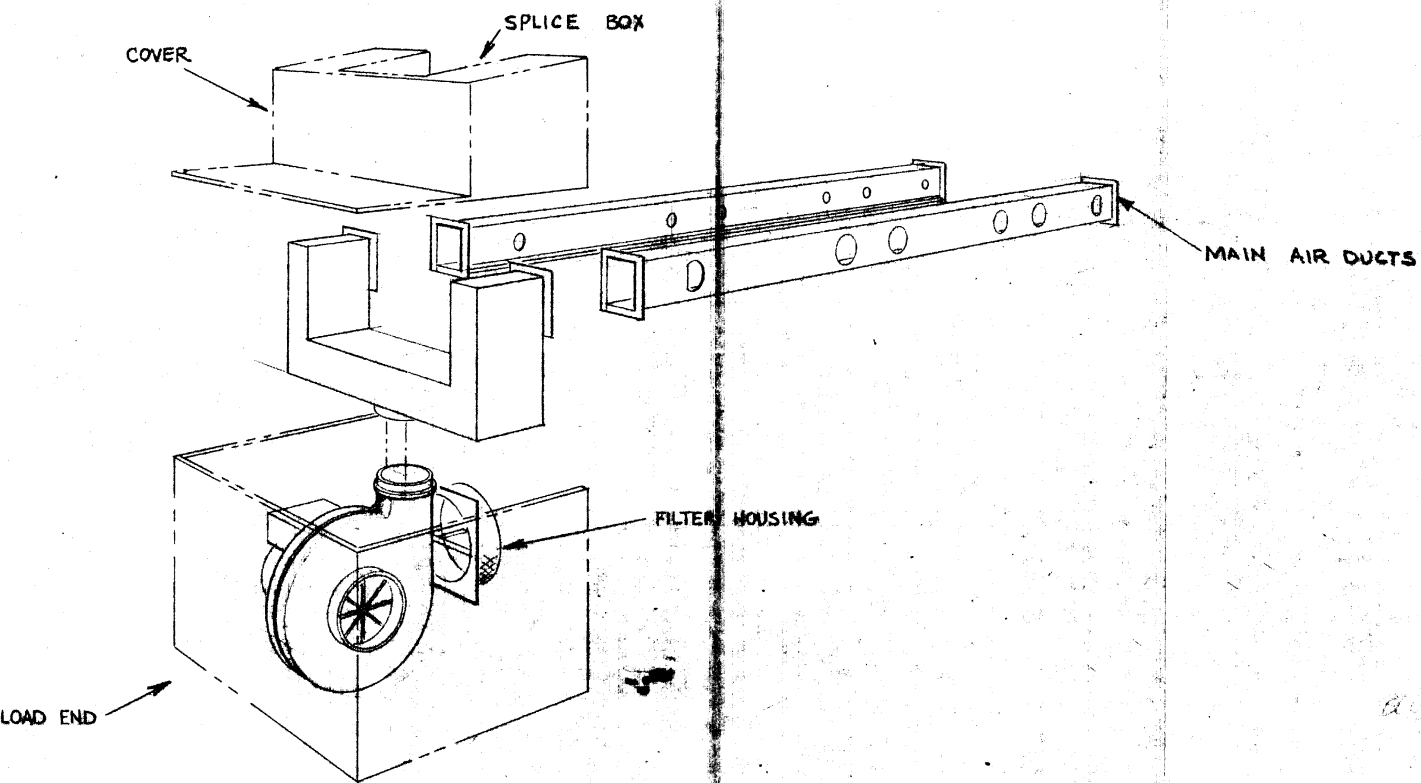


FRAME ASSEMBLY

FIG. 4-1



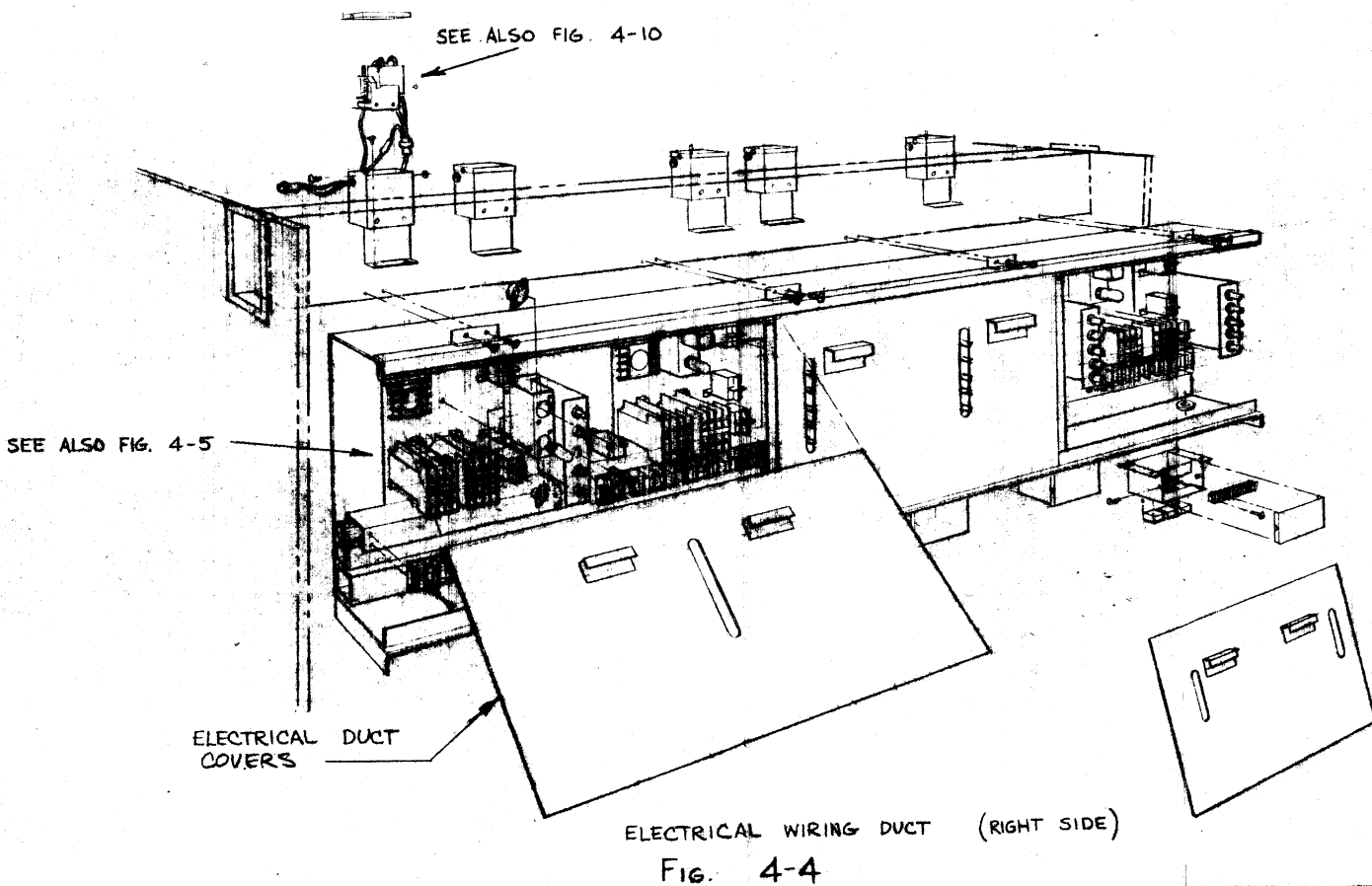
TANK, MODULE AND PLUME ASSEMBLY  
FIG 4-2



BLOWER, AIR FILTER AND DUCT ASSEMBLY

Fig 4-3

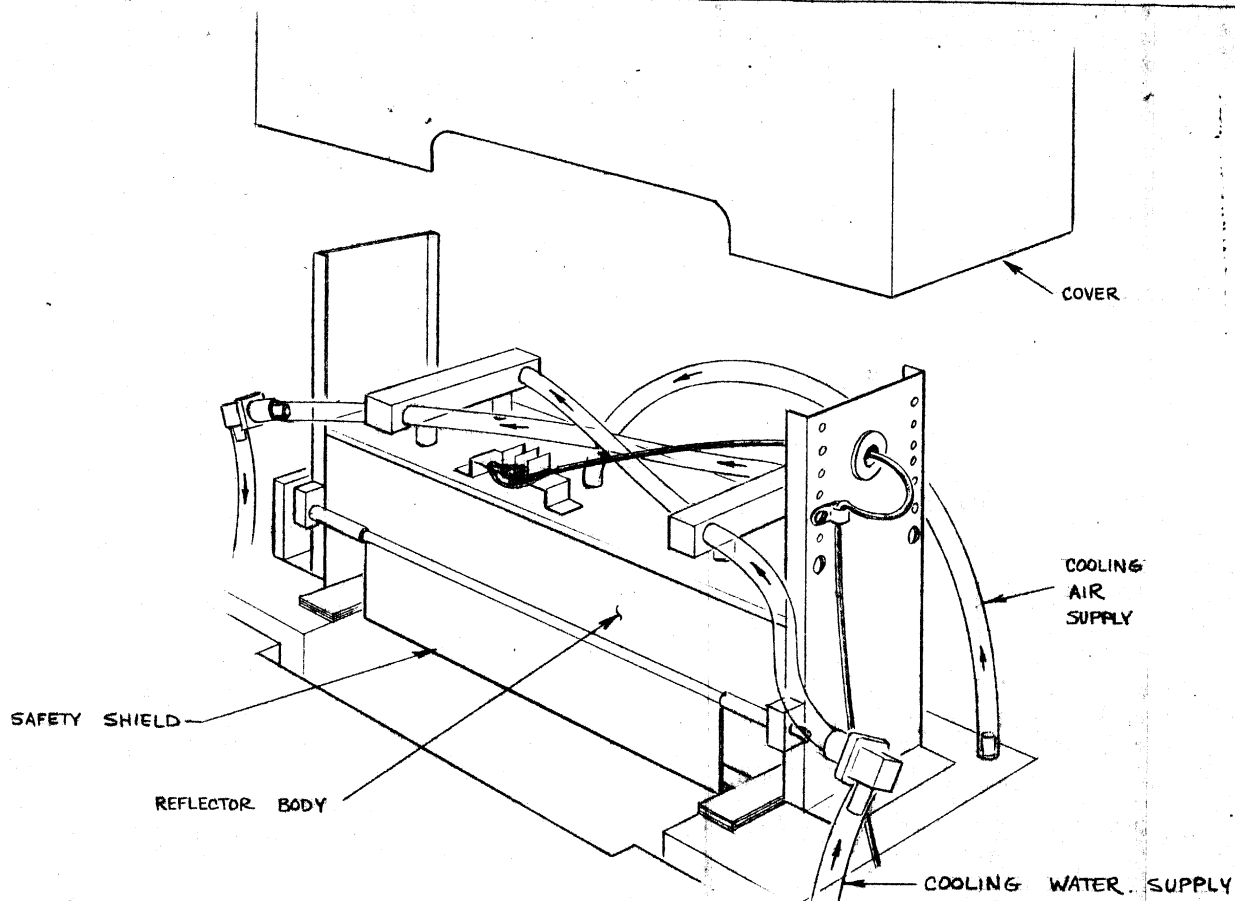




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|------|---|
| o #1 | o |
| o #2 | o |
| o #3 | o |
| o #4 | o |
| o    | o |

ADJUSTMENT  
POSITIONS

INFRARED DRIER

FIG 4-B

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STAT

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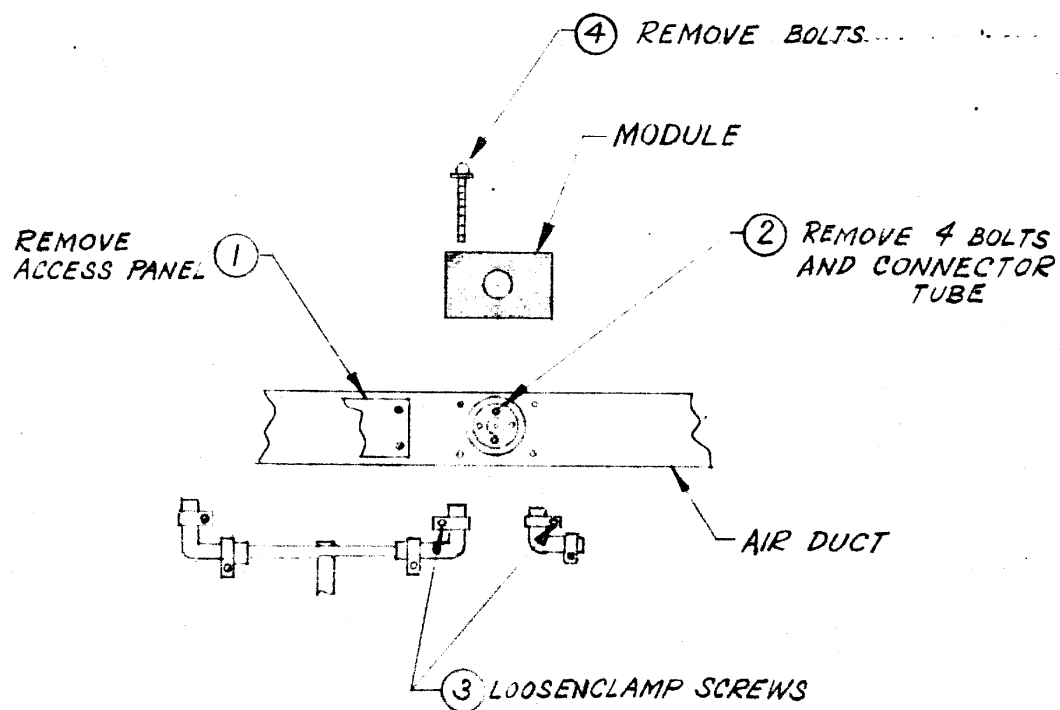
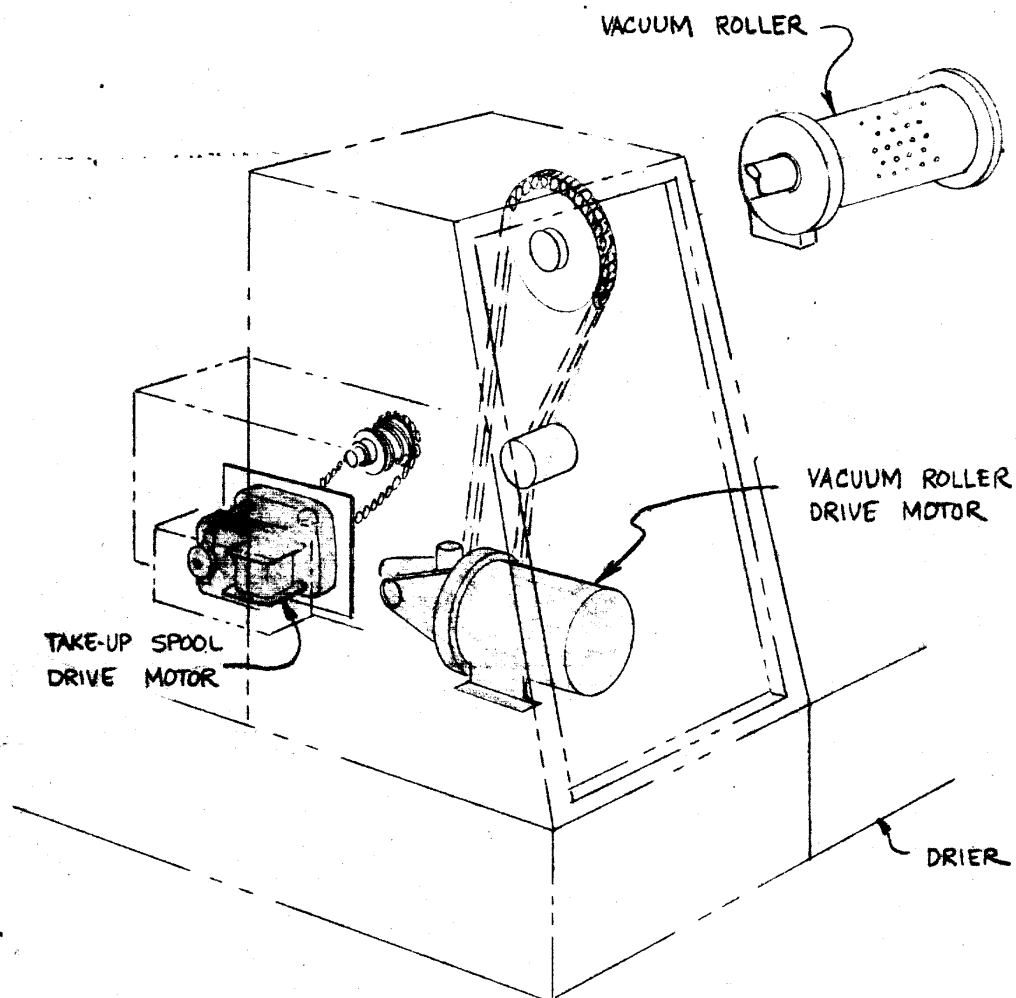


FIG. 4-8

REMOVAL OF MODULE



VACUUM ROLLER AND TAKE-UP SPOOL  
DRIVE MOTORS

FIG 4-9

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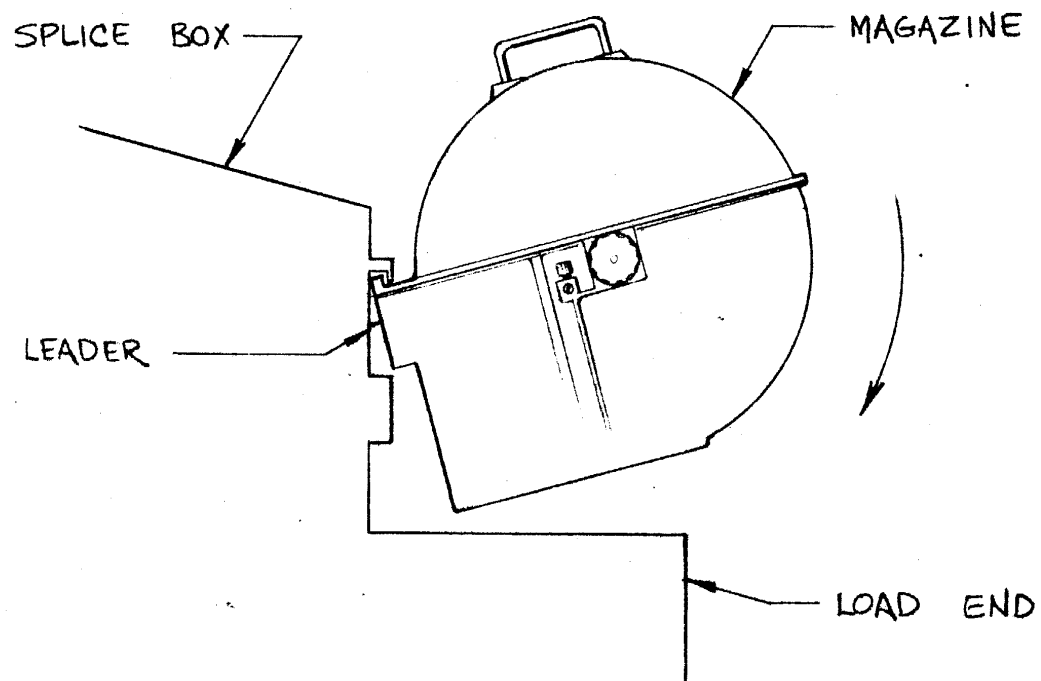
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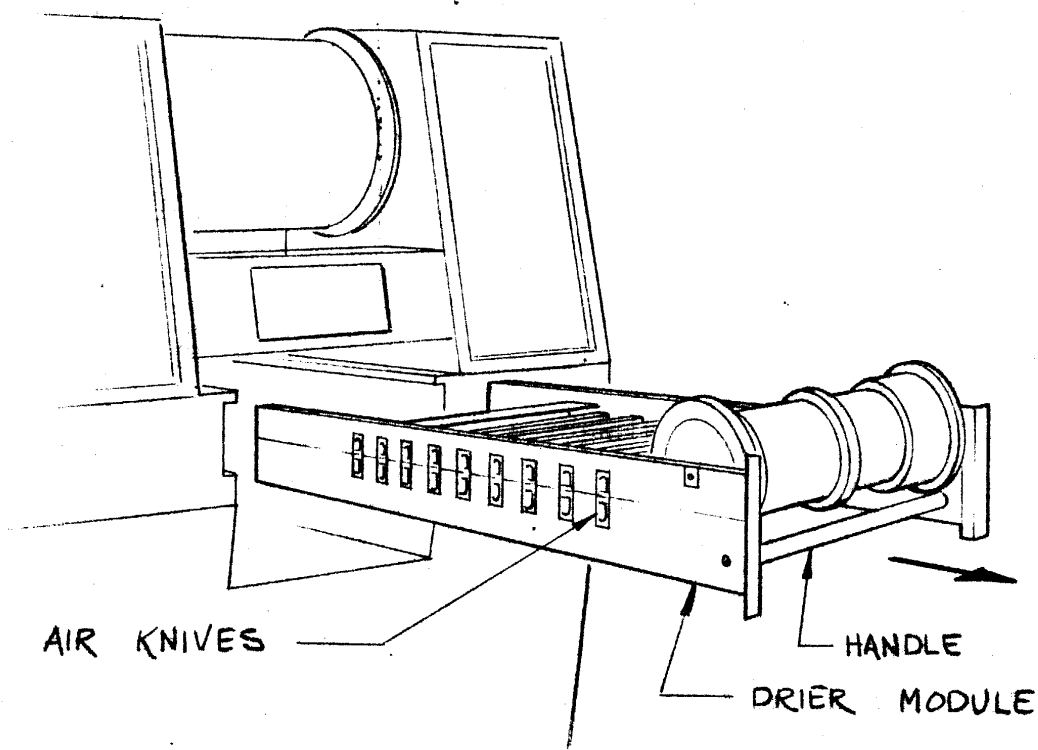
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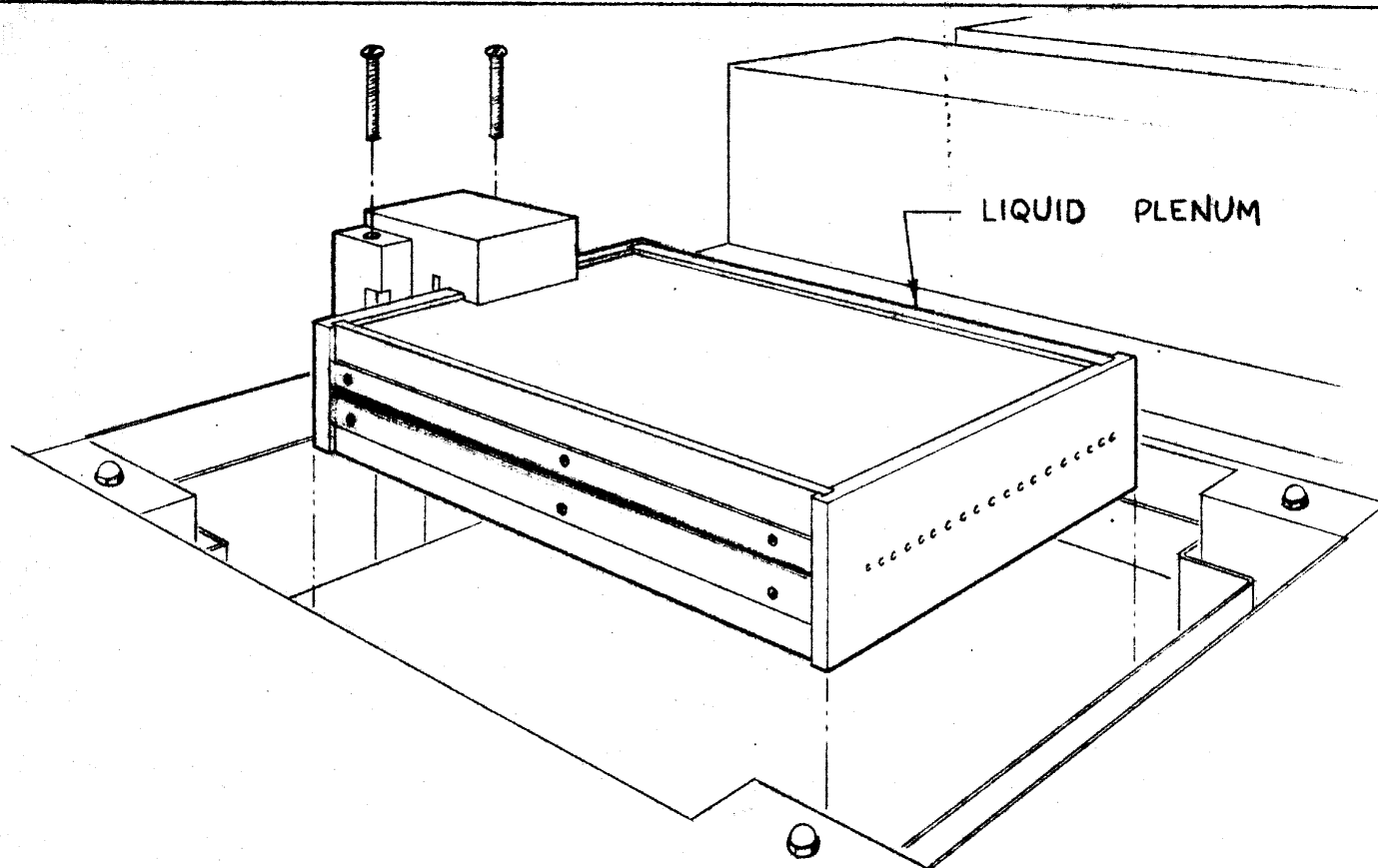


MAGAZINE INSTALLATION



DRIER ASSEMBLY (REMOVAL)

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REMOVAL of AGITATION PLENUM

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FIG. 4-13

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## NUMERICAL PARTS LIST

PARTS  
LIST NO.

SHEET NO. I OF

9 1/2 " Black & White  
Prototype

Processor

COPY  
NO.COPY  
DATE

DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
<b>I. TRANSPORTING SYSTEM</b>					
Magazine					
Plate, Splicing 9 1/2"					
Plate, Splicing 70mm					
Roller, Splicing Box 9 1/2					
Roller, Splicing Box 70mm					
Vacuum Roller					
Sprocket, Large, Film Drive					
Sprocket, Small, Film Drive					
Sprocket, Film Reel					
Sprocket, Large, Vacuum Roller					
Sprocket, Small, Vacuum Roller					
Roller Chain					
Clutch, Film Drive					
Takeup Roller, Drier					
<b>II. DEVELOPING SYSTEM</b>					
Module, Top, Load End					
Module, Upper, Load End					
Module, Lower, Load End					
Module, Bottom, Load End					
Module, Top, Takeup End					
Module, Upper, Takeup End					
Module, Lower, Takeup End					

## NUMERICAL PARTS LIST

PARTS  
LIST NO.

SHEET NO. 2 OF

FOR:

9 1/2" Black & White  
Prototype

Processor

COPY  
NO.COPY  
DATE

LINE NO.	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1	Module, Top, Center					
2	Module, Upper, Center					
3	Module, Lower, Center					
4	Module, bottom, Center					
5	Light Seal, Load End Module					
6	Tank, Developer					
7	Tank, Short Stop					
8	Tank, Fix					
9	Tank, Hypo Eliminator					
10	Tank, Wash					
11	Air Knife					
12	Wedge, Flow Equalizer					
13	Cover, Air Knife					
14	Agitator, Developer Tank					
15	Agitator, Wash tank					
16	Cover, Light Seal, Develop. Tank					
17	Cover, Light Seal, Fix Tank					
18	Cover, Light Seal, Wash Tank					
19	Cover, Light Seal, Small Tank					
20	Film Tray, Develop. Tank					
21	Film Tray, Fix Tank					
22	Film Tray, Wash Tank					
23	Film Tray, Small Tank					
24	O-Ring					
25						

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## NUMERICAL PARTS LIST

**PARTS**  
**LIST NO.**

SHEET NO. 3 OF

**FOR:**

9 1/2" Black & White  
Prototype

Processor

COPY  
NO.

COPY  
DATE

LINE NO.	REV LTR	DWG SIZE	PRODUCTRON PART NO.	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1				III DRYING SYSTEM					
2				Drier Frame w/ Air Knives					
3									
4				IV PLUMBING SYSTEM					
5				Elbow,					
6				Elbow,					
7				Dayco Straight Hose 1"					
8				Dayco Straight Hose 1 5/8					
9				Plunger, Valve					
10				Tube, Feeder					
11				Block, Filler, Develop. Tank					
12				Block, Liq. Filler					
13				Block, Drain, Wash Tank					
14				Valve, Manifold					
15				Valve, Drain					
16				Tube, Drain, Wash Tank					
17				1/2 gal Glass Bottle					
18				Quick Connector					
19				Quick Connector					
20				O-Ring					
21				O-Ring					
22				O-Ring					
23				O-Ring					
24				Flexible Hose, Exhaust- 1 1/2 I. D.					
25									

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## NUMERICAL PARTS LIST

PARTS  
LIST NO.

SHEET NO. 4 OF

FOR:

9 1/2" Black & White  
Prototype

ProcessorSTAT

COPY  
NO.COPY  
DATE

STAT

STAT

LIN NO	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1	Block, Thermoswitch					
2	Block, Thermoswitch					
3	Clamp					
4	Clamp					
5	Clamp					
6	Clamp					
7	Hose, Red, Schraeder Quick Conn.					
8	Liq. Level Probe					
9	1/2 I.D. Tygon Tubing					
10	Bracket (over Circ. Pump Inlet)					
11	Wrench, Liq. Level Probe					
12						
13	V HEATING SYSTEM					
14	Heat Conductor					
15	Clamp, Heat Conductor					
16	Cap, Heater Tube					
17	Liq. Temp Sensor					
18	Wrench, Heater Tube					
19						
20	VI PNEUMATIC SYSTEM					
21	Filter					
22	Gasket, Blower Duct					
23						
24	VII MISC. PARTS					
25	Clamp, Cable					

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PARTS  
LIST NO.

## NUMERICAL PARTS LIST

SHEET NO. 5 OF

FOR:

9 1/2" Black & White  
Prototype

Processor

COPY  
NO.COPY  
DATE

LIN NO	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1	Key					
2	Key					
3	Key					
4	Caster					
5	Viewing Plate					
6						
7						
8	VIII ELECTRICAL COMPONENTS					
9	Pump, Infratron Cooling					
10	Motor, Take-up					
11	Relay, Drier					
12	Relay, Control					
13	Relay, Control					
14	Relay, Heater					
15	Relay, Heater					
16	Relay, Blower & Vacuum Motor					
17	Relay, Circulation Pump					
18	Relay, Pump Interlock					
19	Main Contactor					
20	Transformer					
21	Circuit Breaker					
22	Circuit Breaker					
23	Control Fuse					
24	Pump Fuse					
25						

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## NUMERICAL PARTS LIST

PARTS  
LIST NO.

SHEET NO. 6 OF

FOR:

9 1/2" Black & White  
Prototype

Processor

COPY  
NO.COPY  
DATE

LINE NO.	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1	Film Drive Fuse					
2	Variable Thermostat					
3	Mercury Thermostat					
4	Valve, Drain					
5	Infratron Shutter Solenoid					
6	Solenoid Valve					
7	Relay, Air Pressure Time Delay					
8	Relay, Circ. Pump Time Delay					
9	Relay, Thermostat Time Delay					
10	Relay, Thermostat					
11	Heater, Chemistry					
12	Drier, Air					
13	Light, Indicating					
14	Light, Indicating					
15	Light, Power & Process					
16	Viewing, Lamp					
17	Lamp, Infratron Drier					
18	Film Drive Control					
19	Box, Liq. Level Relay					
20	Heater Thermostat					
21	Film Drive Switch					
22	Infratron Switch					
23	Air Heater Switch					
24	Power and Push Button Process					
25						

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STAT

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## NUMERICAL PARTS LIST

PARTS  
LIST NO.

SHEET NO. 7 OF

FOR:

9 1/2" Black & White  
Prototype

Processor

COPY  
NO.COPY  
DATE

LINE NO.	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1	Tank Push Button on					
2	Lens Cap					
3	Indicating Light Bulbs					
4	Indicating Light Sockets					
5	Liq. Light Connectors					
6	Liq. Light Flex					
7	Control Relay, K 2					
8	Thermostat Relay, K 5					
9	Warm Up, Ready Light Relay K9					
10	Pump Caps					
11	Pump Outlets					
12	Neutral Terminal Block					
13	Terminal Block					
14	Terminal Block					
15	Terminal Block					
16	Load Center					
17	Terminal Block					
18	Process Light Relay					
19	Terminal Block					
20	Varistors					
21	Fuse Holders					
22	Terminal Block T11					
23	Terminal Block T32					
24	Viewing Lamp Sockets					
25						

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## NUMERICAL PARTS LIST

PARTS  
LIST NO.

SHEET NO. 8 OF

FOR:

9 1/2" Black & White  
Prototype

Processor

COPY  
NO.COPY  
DATE

LINE NO.	DESCRIPTION	TOTAL QTY	BOOK NO.	✓	REL DATE	SIG
1	Variable Auto Transformer					
2	Voltmeter					
3	Octal Tube Sockets					
4	9 Pin Tube Sockets					
5	5 Pin Relay Sockets					
6	Air Pressure Motor					
7	Circulation Pump					
8	Warm-up Pump					
9	Film Drive Motor					
10	Vacuum Motor					
11	Thermistors					
12	Thermistor					
13	Thermistor Selecting switch					
14	Temp. Aux. Box					
15	Process Sw., Ready Light Interlock Relay					
16	Octal Socket					
17	Interlock Time Delay Relay					
18						
19						
20						
21						
22						
23						
24						
25						

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